UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,340	07/03/2003	Stephen L. Bass	10981292-2	5093

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER
DO, CHAT C

ART UNIT	PAPER NUMBER
2124	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/613,340	BASS ET AL.
	Examiner	Art Unit
	Chot C. Do	2184

S e n t :h   e period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒   esponsive to communication(s) filed on _30 November 2004_.

2a)☐ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-18 and 27-38_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-18 and 27-38_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to Preliminary Amendment and Remark filed

11/30/2004.

2.   Claims 1-18 and 27-38 are pending in this application. Claims 1, 7, 13, 27, and 32 are

independent claims. In Amendment, claims 19-26 are cancelled. This Office action is a

supplemental to Non-Office action sent 10/27/2004.

Claim Objections

3.   Claims 33-37 are objected to because of the following informalities:

       Re claims 33-37, these claims currently are depending on themselves respectively.

The applicant is advised to amend all of these claims to depend on claim 32.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

   The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
   subject matter which the applicant regards as his invention.

5.   Claims 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

       Re claim 28, the limitation "the component" in line 1 lacks an antecedence basis

because it does not define or is not understandable which component in claim 27 is an

array. For examination purposes, the examiner considers "the component" as any

component which comprising an array of multiplexers.

Thus, claim 29 is also rejected for being dependent on the rejected base claim 28.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-18 and 27-38 are rejected under 35 U.S.C. 102(b) as being anticipated by

Taborn et al. (U.S. 5,550,767).

Re claim 1, Taborn et al. disclose in Figures 2 and 4 an exponent computation

apparatus for performing either an overflow or underflow comparison while minimizing

overflow/underflow comparison circuitry (abstract and col. 2 lines 15-24), apparatus

comprising: overflow/underflow possible check circuitry (Figure 2 and 4 as output signal

of 72 and col. 9 lines 34-41), overflow/underflow possible check circuitry configured to

determine if a mathematical operation involving a first exponent signal and a second

exponent signal (B and AC exponents) creates a potential overflow condition (output of

80), overflow/underflow possible check circuitry configured to generate a signal

indicating if overflow condition is a possibility (output of 80); and exponent compare

circuitry (78-79), exponent compare circuitry configured to compute an actual

overflow/underflow condition (78-79), exponent compare circuitry configured to

compute an actual overflow condition if signal indicates overflow is possible (79 with

output of 80 as 72 enable), and exponent compare circuitry configured to computes an

actual underflow condition if signal does not indicate overflow is possible (78 with

output of 72 enable).

Re claim 2, Taborn et al. further disclose in Figures 1-4 an exponent compare

circuitry generates an error signal if an actual overflow/underflow condition exists (col. 9

lines 41-48 and col. 9 lines 60-65).

Re claim 3, Taborn et al. further disclose in Figures 1-4 a pre-normalized

exponent selection circuitry configured to determine a larger exponent between first

exponent signal and second exponent signal (Figures 1 and 2).

Re claim 4, Taborn et al. further disclose in Figures 1-4 an overflow/underflow

possible check circuitry uses largest exponent to determine if mathematical operation

between first exponent signal and second exponent signal creates overflow condition

(Figure 2 part 51 and col. 7 lines 61-68).

Re claim 5, Taborn et al. further disclose in Figures 1-4 an exponent shift amount

circuitry configured to determine how much the mantissa of largest exponent must be

shifted to be normalized, and configured to compute a normalized exponent (35 and 39 in

Figure 1).

Re claim 6, Taborn et al. further disclose in Figures 1-4 an exponent compare

circuitry uses normalized exponent to determine if mathematical operation between first

exponent signal and second exponent signal creates overflow condition (Figure 2 part 51

and col. 7 lines 63-68 and col. 8 lines 1-9).

Re claim 7, it is a method claim of claim 1. Thus, claim 7 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 8, it is a method claim of claim 2. Thus, claim 8 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 9, it is a method claim of claim 3. Thus, claim 9 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Re claim 10, it is a method claim of claim 4. Thus, claim 10 is also rejected under the same rationale as cited in the rejection of rejected claim 4.

Re claim 11, it is a method claim of claim 5. Thus, claim 11 is also rejected under the same rationale as cited in the rejection of rejected claim 5.

Re claim 12, it is a method claim of claim 6. Thus, claim 12 is also rejected under the same rationale as cited in the rejection of rejected claim 6.

Re claim 13, it is an apparatus claim of claim 1. Thus, claim 13 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 14, it is an apparatus claim of claim 2. Thus, claim 14 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 15, it is an apparatus claim of claim 3. Thus, claim 15 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Re claim 16, it is an apparatus claim of claim 4. Thus, claim 16 is also rejected under the same rationale as cited in the rejection of rejected claim 4.

Re claim 17, it is an apparatus claim of claim 5. Thus, claim 17 is also rejected under the same rationale as cited in the rejection of rejected claim 5.

Re claim 18, it is an apparatus claim of claim 6. Thus, claim 18 is also rejected

under the same rationale as cited in the rejection of rejected claim 6.

Re claim 27, Tahorn et al. disclose in Figures 1-5 an exponent computation

apparatus for performing an overflow and underflow comparison while minimizing

overflow/underflow comparison apparatus comprising: overflow/underflow possible

check circuitry (Figure 2 and 4 as output signal of 72 and col. 9 lines 34-41),

overflow/underflow possible check circuitry configured to determine if a mathematical

operation involving a first exponent signal and a second exponent signal (B and AC

exponents) creates a potential overflow condition (output of 80), overflow/underflow

possible check circuitry configured to generate a signal indicating if overflow condition is

a possibility (output of 80); and exponent compare circuitry having a series of

comparators (e.g. Figure 4 with 72, 75, and 78), exponent compare circuitry configured to

utilize each of comparator to compute an actual overflow condition if signal indicates

overflow is possible (e.g. right portion of Figure 4), and exponent compare circuitry

further configured to utilize each of comparators to compute an actual underflow

condition if signal does not indicate overflow is possible (e.g. left portion of Figure 4).

Re claim 28, Tahorn et al. further disclose in Figures 6-7 the component is an

array of multiplexer (e.g. Figure 6 wherein 100-105 are multiplexers) configured to select

constants based upon signal (e.g. 72/73 from the top) received from underflow/overflow

possible check circuitry.

Re claim 29, Tahorn et al. further disclose in Figures 1-4 each multiplexer in array

of multiplexers produces an output corresponding to signal (e.g. output of 100) and each

of outputs is input into a carry save adder in an array of carry save adders (e.g. output to 39).

Re claim 30, Tahorn et al. further disclose in Figures 1-4 the exponent compare circuit is further configured to perform multiple simultaneous compares of an exponent and a plurality of overflow thresholds if signal indicates the possibility of an overflow (e.g. section of circuit for producing output of 65 and 66 in Figure 3).

Re claim 31, Tahorn et al. further disclose in Figures 1-4 the exponent compare circuit is further configured to perform multiple simultaneous compares of an exponent and a plurality of underflow thresholds if signal indicates the possibility of an underflow (e.g. section of circuit for producing output of 67 in Figure 3).

Re claim 32, Tahorn et al. disclose in Figures 1-7 a method for performing overflow and underflow comparisons with exponent comparison circuitry (abstract) comprising the steps of: selecting (e.g. Figure 6 part 100) an exponent precision underflow/overflow constant from a plurality of exponent underflow/overflow constants (e.g. the exponent shift value); generating a sum signal and a carry signal (e.g. output value of 39 or the final answer) from one of plurality of exponent underflow/overflow constants (e.g. output of 10), a pre-normalized exponent signal (e.g. output of 37) and a normalization shift amount signal (e.g. output of 35); computing an underflow/overflow result from sum signal and carry signal (e.g. 10 in Figure 1); and transmitting an underflow/overflow condition based upon underflow/overflow result and an exponent adjust amount signal (e.g. Figure 4).

Re claim 33, Tahorn et al. further disclose in Figures 1-7 the selecting steps further comprises selecting constants via a plurality of constant selectors (e.g. 100-105).

Re claim 34, Tahorn et al. further disclose in Figures 1-7 plurality of constant selectors comprises two constant selectors (e.g. 100 and 101).

Re claim 35, Tahorn et al. further disclose in Figures 1-4 the generating step further comprises generating sum signal and carry signal via a plurality of carry save adders (e.g. output of either 30 or 39 in Figure 1).

Re claim 36, Tahorn et al. further disclose in Figures 1-4 the computing step further comprises computing underflow/overflow result via a plurality of comparators (e.g. Figure 3 or 4).

Re claim 37, Tahorn et al. further disclose in Figures 1-7 plurality of comparators further comprises four comparators (e.g. 100-103) and wherein a first one of four comparators uses a least significant bit of carry signal (e.g. signal from decoder 77) from one of plurality of carry save adders and a carry-in signal (e.g. signal from adder 25 in Figure 1) to extent the range of constant being compared.

Re claim 38, Tahorn et al. further disclose in Figures 6-7 exponent compare circuitry comprises a plurality of underflow/overflow result selectors, each result selector configured to transmit overflow condition and underflow condition based upon an underflow/overflow result from a plurality of comparators and further based upon an exponent adjust amount signal (e.g. Figures 6 for underflow and 7 for overflow).

Response to Arguments

8.   Applicant's arguments filed 11/30/2004 have been fully considered but they are not

persuasive.

a.   The applicant argued in pages 9-10 for claim 1 that the motivation to combine

under 103 rejection is not valid.

The examiner respectfully submits that claim 1 is not rejected under 103 rejection

as applicant argued. Instead, it is rejected under 102 and urges the applicant

review the rejection as cited above.

b.   The applicant argued in page 11 for claim 30-31 that claims 30-31 were formerly

claims 31 and 32 respectively.

The examiner respectfully submits that claims 30-31 are newly add in the

preliminary amendment.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The

examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2124

February 10, 2005

KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100